R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claim 5 has been amended to clarify that it is related to a fingerprint image processing apparatus, and claim 16 has been amended to clarify that it is related to a method of processing fingerprint image data, as supported by the disclosure throughout the specification and drawings (see also claims 10 and 20, for example).

Claims 5 and 16 have also been amended to more clearly and positively recite the features of the apparatus and method thereof, based on claims 6 and 17, respectively, and based on, for example, Fig. 19 and the corresponding disclosure in the specification.

Claims 7 and 18 have been amended to more clearly and positively recite the features of the apparatus and method thereof, based on, for example, Fig. 20 and the corresponding disclosure in the specification.

Claims 8 and 19 have been amended to more clearly and positively recite the features of the apparatus and method thereof, based on, for example, Fig. 21 and the corresponding disclosure in the specification.

The claims have been amended to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put them in better form for issuance in a U.S. patent.

The use of the word "manieth" has been avoided in the amended claims, as required by the Examiner.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered, and that the objection to the claims be withdrawn.

THE PRIOR ART REJECTION

Claims 5-8, 16-19 were rejected under 35 USC 102 as being anticipated by USP 6,608,941 ("Suzuki et al"), and claims 9, 10 and 20 were rejected under 35 USC 103 as being obvious in view of the combination of Suzuki et al and JP 2002-184490 ("Horinouchi"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

Suzuki et al discloses filter processing in which when an original is read by a digital copying machine, the moiré phenomenon is reduced, and white dropouts are prevented from occurring in a solidly shaded portion. Horinouchi discloses a roller type of a fingerprint reading apparatus using a line sensor.

By contrast, the present invention as recited in amended independent claims 5 and 16 is related to achieving a correction

for eliminating an influence of the variance among the image pickup elements of the line sensor and optical elements.

That is, according to amended independent claim 5, a fingerprint image processing apparatus is provided which comprises: a line sensor including a plurality of image pickup elements; a pixel value detecting unit which detects a respective maximum value and a respective minimum value from fingerprint image data output from each of the image pickup elements; a pixel value range detecting unit which detects a pixel value range between the respective maximum value and the respective minimum value detected by the pixel value detecting unit for the fingerprint image data read by each of the image pickup elements; a normalized data generating unit which generates, for each pixel of the fingerprint image data, normalized data that indicates a ratio of a pixel value of the pixel to the pixel value range corresponding to the image pickup element which read the pixel; a normalized data average calculating unit which calculates averages, corresponding respectively to the image pickup elements, of the normalized data generated by the normalized data generating unit from the fingerprint image data read by the respective image pickup elements; and a pixel value correcting unit which corrects a pixel value of each of the pixels of the fingerprint image data based on: (i) the average calculated by

the normalized data average calculating unit corresponding to the image pickup element which read the pixel, and (ii) a maximum possible pixel value of the pixels.

With this structure, with respect to the fingerprint image data fetched by the line sensor comprising the image pickup elements, the maximum and minimum pixel values are detected from the fingerprint image data fetched by each image pickup element (refer to step T1 in Fig. 19); pixel value ranges are detected for the image pickup elements, respectively, based on the maximum and minimum pixel values (refer to step T2 in Fig. 19); each of the pixels of the fingerprint image data read by each image pickup element is normalized based on the respective pixel value ranges for the image pickup elements (refer to step T3 in Fig. 19); the average value of the normalized data obtained with respect to the pixels is calculated for the fingerprint image data obtained by each of the image pickup elements (refer to step T4 of Fig. 19); and the pixel value of each of the pixels in the entire fingerprint image is corrected based on the respective average values obtained with respect to the image pickup elements (refer to step T5 of Fig. 19).

Amended independent method claim 19, moreover, recites a method similar to the apparatus of amended independent claim 5.

It is respectfully submitted that neither Suzuki nor Horinouchi discloses that with respect to fingerprint image data

fetched by a line sensor, the maximum and minimum pixel values are detected from the fingerprint image data fetched by each image pickup element, the fingerprint image data is normalized, the averages of the normalized image data is obtained, and the entire fingerprint image is corrected, in the manner recited in amended independent claims 5 and 16. That is, Suzuki et al and Horinouchi do not disclose, teach or suggest the structure or method recited in amended independent claims 5 and 16.

Accordingly, it is respectfully submitted that the present invention as recited in amended independent claims 5 and 16, and all of the claims depending therefrom, clearly patentably distinguish over Suzuki et al and Horinouchi et al, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

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